**Amendments to the Claims**

This listing of claims will replace all prior versions, and listing, of claims in the application:

1. (Previously Presented) A heterobipolar transistor, comprising an emitter which includes a first semiconductor layer (9) made of a first semiconductor material and a second semiconductor layer (8) made of a second semiconductor material, a band gap value of the first semiconductor material being smaller than a band gap value of the second semiconductor material, characterized in that:

a semiconductor intermediate layer (10) made of an intermediate layer semiconductor material is disposed between the first semiconductor layer (9) and the second semiconductor layer (8);

a band gap value of the intermediate layer semiconductor material is greater than the band gap value of the first semiconductor material and smaller than the band gap value of the second semiconductor material;

a sequence of n ($n \geq 2$) stacked semiconductor intermediate layers (31, 32, 33) constituted by the semiconductor intermediate layer (31) and at least one other semiconductor layer (32) made of another intermediate layer semiconductor material are disposed between the first semiconductor layer (9) and the second semiconductor layer (8);

the at least one other semiconductor layer (32) is disposed between the semiconductor intermediate layer (31) and the second semiconductor layer (8); and

a band gap value of the other intermediate layer semiconductor material is greater than the band gap value of the intermediate layer semiconductor material and smaller than the band gap value of the second semiconductor material.

2. (Original) The heterobipolar transistor as claimed in claim 1, characterized in that the intermediate layer semiconductor material is lattice adapted to the first semiconductor material and/or the second semiconductor material.

3. (Original) The heterobipolar transistor as claimed in claim 2, characterized in that the band gap value of the intermediate layer semiconductor material equals half the sum of the band gap value of the first semiconductor material plus the band gap value of the second semiconductor material.

4. (Original) The heterobipolar transistor as claimed in claim 1, characterized in that the first semiconductor material comprises InGaAs, the second semiconductor material comprises InP, and the intermediate layer semiconductor material comprises InGaAsP.

5. (Original) The heterobipolar transistor as claimed in claim 1, characterized in that the first semiconductor material comprises InGaAs, the second semiconductor material comprises InAlAs, and the intermediate layer semiconductor material comprises AlGaInAs.

6. (Cancelled)

7. (Previously Presented) The heterobipolar transistor as claimed in claim 1, characterized in that the first semiconductor material has a band gap value Be, the second semiconductor material has a band gap value Bz, and an intermediate layer semiconductor

material of a $j^{th}$ of the n semiconductor intermediate layers ($2 \leq j \leq n$) has a band gap value Bj, where $Bj = Be+j\cdot (1/ (l+n) )\cdot (Bz-Be)$.

8. (Previously Presented) The heterobipolar transistor as claimed in claim 7, characterized in that the number n of the semiconductor intermediate layers (31, 32, 33) constituting the sequence is selected such that a quasi linear transition is obtained between the band gap value of the first semiconductor material and the band gap value of the second semiconductor material due to the band gap values of the intermediate layer semiconductor materials disposed between the first semiconductor material and the second semiconductor material.

9. (Cancelled)

10. (Original) The heterobipolar transistor as claimed in claim 1, characterized in that a further semiconductor layer (7) borders on the second semiconductor layer (8) at a side remote from the semiconductor intermediate layers (10, 21, 22, 31, 32, 33), and that the further semiconductor layer (7) borders on a base (5).

11. (New) The heterobipolar transistor as claimed in claim 1, characterized in that the first semiconductor layer is contacted metallically.